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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/689,415	10/12/2000	Bo Deng	BD 99-1-1R	7633

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EXAMINER	
GHULAMALI, QUTBUDDIN	
ART UNIT	**PAPER NUMBER**
2637	

DATE MAILED: 02/01/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/689,415	DENG, BO	
	Examiner	Art Unit	
	Qutub Ghulamali	2637	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *23 September 2004*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-9 and 15-17* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-9 and 15-17* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Acknowledgment

1. This Office Action is responsive to the Amendment filed on 09/23/2004.

Response to Arguments

2. Applicant's arguments filed 05/20/2004 have been fully considered but they are not persuasive. The examiner has thoroughly reviewed Applicant's arguments but firmly believes that the cited reference reasonably and properly meet the claimed limitation as rejected.

Applicant's argument – "a prima facie case of obviousness has not been established with regards to claims 1-9".

Examiner's response - In rejecting claims under 35 U.S.C. § (103), the examiner bears the initial burden of presenting a prima facie case of obviousness. See In re Rilckaert, 9 F. 3d 1531 , 1532, 28 USPQ 2d 1955, 1956 (Fed. Cir. 1993), and in re Fine,

837 F. 2d 1071, 1074, 5 USPQ 2d 1596, 1598 (Fed. Cir. 1988). A prima facie case of obviousness is established by presenting evidence that the reference teachings would appear to have suggested the claimed subject matter to one of ordinary skill in the art.

See In re Bell, 991 F. 2d 781, 783, 26 USPQ 2d 1529, 1531 (Fed. Cir. 1993). In re Fritch, 972 F. 2d 1260, 1266 n.14, 23 USPQ 2d 1780, 1783-84 n.14 (Fed. Cir. 1992); Uniroyal, lnc. v. Rudkin-Wiley Corp., 837 F. 2d 1044, 1051 , 5 USPQ 2d 1434. 1438 (Fed. Cir. 1988). Ashland Oil, Inc. v. Delta Resins & Refractories Inc, 776 F. 2d 281, 293, 227 USPQ 657, 664 (Fed. Cir. 1985).

It also cannot show non-obviousness by attacking references individually where, as here the rejections are based on combination of references. In re Keller, 208 USPQ 871 (CCPA 181).

The Examiner points to a coding the input digital signals of Szczutkowski, in each sub-band channel in order to provide compressed coded signal in a receiver, transmitting said coded output signal to a receiver, a decoding means connected to receive sub-band channel for separately decoding the time delayed digital signals (abstract; col. 7, lines 45-67; col. 8, lines 10-25). Szczutkowski also teach the benefit to use a technique for efficient implementation of delay equalization in a sub-band coder/decoder (column 2, lines 44-54).

The Examiner also points out that Sarpeshkar discloses a spike based hybrid machine (figs. 2, 3, 12, 13) include so called neuron circuits for accumulating analog current signals over a period of time and the generation of fast-rising spiking signals converting spikes as output signal (col. 2, lines 10-15, 25-30; col. 4, lines 64-67; col. 5, lines 1-5). (column 8, lines 18-25). Sarpeshkar also teaches that the use in some cases of spike based hybrid architecture and circuitry achieve important performance and flexibility advantage, e. g., in restoring signals to avoid significant degradation during transmission and processing over time (column 2, lines 23-43).

When an obviousness determination relies on the combination of two or more references, there must be some suggestion or motivation to combine the references.

See In re Rouffet, 149 F. 3d 1350, 1355, 47 USPQ 2d 1453, 1456 (Fed. Cir. 1998). The suggestion to combine may be found in explicit or implicit teachings within the references themselves, from the ordinary knowledge of those skilled in the art, or from the nature of the problem to be solved. See id. at 1357, 47 USPQ 2d at 1458. Moreover, as long as some motivation or suggestion to combine the references is provided by the prior art taken as a whole,

the law does not require that the references be combined for the reasons contemplated by the inventor. See in re Dillon, 919 F.2 d 688, 693, 16 USPQ 2d 1897, 1901 (Fed. Cir. 1990) (en banc), cert. denied, 500 U.S. 904 (1991) and In re Beattie, 974 F. 2d 1309, 1312, 24 USPQ 2d 1040, 1042 (Fed. Cir. 1992). Thus, as stated by the Examiner, the advantages described by Sarpeshkar would have motivated one of ordinary skill in the art to employ the spike burster circuit in the coder/decoder of Szczutkowski.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

4. Claims 1-9 are rejected under 35 U.S.C. 103(a) as being unpatentable over US Szczutkowski (US Patent No. 5,051,991) in view of US Patent 6,262,678 to Sarpeshkar.

Regarding claims 1, 3, 9, Szczutkowski discloses a transceiver (repeater) (fig. 1), a sub-band coder/decoder wherein a means for separately coding the input digital signals in each sub-band channel in order to provide compressed coded signal in a receiver, transmitting said coded output signal to a receiver, a decoding means connected to receive sub-band channel for separately decoding the time delayed digital signals (abstract; col. 7, lines 45-67; col. 8, lines 10-25). Szczutkowski however, fails to disclose spike buster converting the output signal into spike burst and into an output signal corresponding to input signal. Sarpeshkar discloses a spike based hybrid machine (figs. 2, 3, 12, 13) circuit for generating analog current signals over a

period of time and the generation of fast-rising spiking signals converting spikes as output signal (col. 2, lines 10-15, 25-30; col. 4, lines 64-67; col. 5, lines 1-5). Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify Szczutkowski's transceiver to include spike buster converting the output signal into spike burst and into an output signal corresponding to input signal as to achieve important performance and flexibility advantages in reproduction quality as taught by Sarpeshkar.

Regarding claims 5-8, Szczutkowski discloses features of the claimed invention as discussed above, but fails to disclose arbitrary logic functions such as activation and deactivation regions for the spikes. Sarpeshkar discloses activation and transitions of states for the neuron firings (spikes) during the up count and down count of spikes by the counter (figs. 9, 10, 11). It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify Szczutkowski's transceiver to include spike buster with transitions of activation for the spikes so as to achieve spike activation as taught by Sarpeshkar (col. 16, lines 46-51; col. 17, lines 1-17).

Regarding claim 2, Szczutkowski discloses a suitable encoding algorithm (e.g. adaptive pulse code modulation, adaptive differential pulse code modulation, block companded pulse code modulation, etc.) (col. 2, lines 18-23).

Regarding claim 4, any conventional circuit may be used in the transmit/receive interface may employ the clock recovery circuits in a non-linear fashion.

5. Claim 15 is rejected under 35 U.S.C. 103(a) as being unpatentable over US Szczutkowski (US Patent No. 5,051,991) in view of US Patent 6,262,678 to Sarpeshkar

Regarding claim 15, Szczutkowski discloses a communication method comprising:

a. a transceiver (repeater) (fig. 1), a sub-band coder/decoder wherein a means for separately coding the input signal into coded output signal;

b. transmitting said coded output signal to a receiver. Szczutkowski however, is silent regarding regarding claim limitations c-f.

Sarpeshkar in a similar field of endeavor discloses:

c. a spike based hybrid (figs. 2, 3, 12, 13) circuit for generating fast-rising spiking signals;

d. converting spikes as output signal (col. 2, lines 10-15, 25-30; col. 4, lines 64-67; col. 5, lines 1-5);

e. transmitting coded output signal via wireless transmission (fig. 1, element 10), using encoding algorithm (e.g. adaptive pulse code modulation, adaptive differential pulse code modulation, block companded pulse code modulation, etc.) (col. 2, lines 18-23);

f. spike buster include at least one activation region and one deactivation region for producing said spike burst (figs. 10, elements ph, MSB, LSB) (col. 13, lines 63-64; col. 14, lines 4-13; col. 17, lines 45-49). It would have been obvious to one skilled in the art at the time the invention was made to use the steps c-f taught by Sarpeshkar in the system of Szczutkowski because it can avoid significant degradation during transmission and processing of signals over time and help restore the signals.

Regarding claim 16, Szczutkowski discloses all claim limitation of claim 16, except spikes correspond to activation region and non-spikes correspond to deactivation region. In a similar field of endeavor, Sarpeshkar discloses a spike buster include at least one activation region and one deactivation region for producing said spike burst (figs. 10, elements ph, MSB, LSB) (col. 13, lines 63-64; col. 14, lines 4-13; col. 17, lines 45-49). It would have been obvious

to one skilled in the art at the time the invention was made to use one activation region and one deactivation region for producing said spike burst in the system of Szczutkowski as taught Sarpeshkar because it can mitigate noise present during sampling and maximize signal restoration.

Regarding claim 17, Szczutkowski discloses all claim limitation of claim 17, except converting utilizes a summing operational amplifier. In a similar field of endeavor, Sarpeshkar discloses a summing operational amplifier (A/D/A) (col. 2, lines 23-36. It would have been obvious to one skilled in the art at the time the invention was made to use a signal conversion device in the system of Szczutkowski as taught Sarpeshkar because it can help restore the signals and achieve important performance and flexibility.

Conclusion

6. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event,

however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Qutub Ghulamali whose telephone number is (571) 272-3014. The examiner can normally be reached on Monday-Friday from 8:00AM - 5:00PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jay Patel can be reached on (571) 272-2988. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

QG

January 27, 2005.

JAY K. PATEL
SUPERVISORY PATENT EXAMINER